

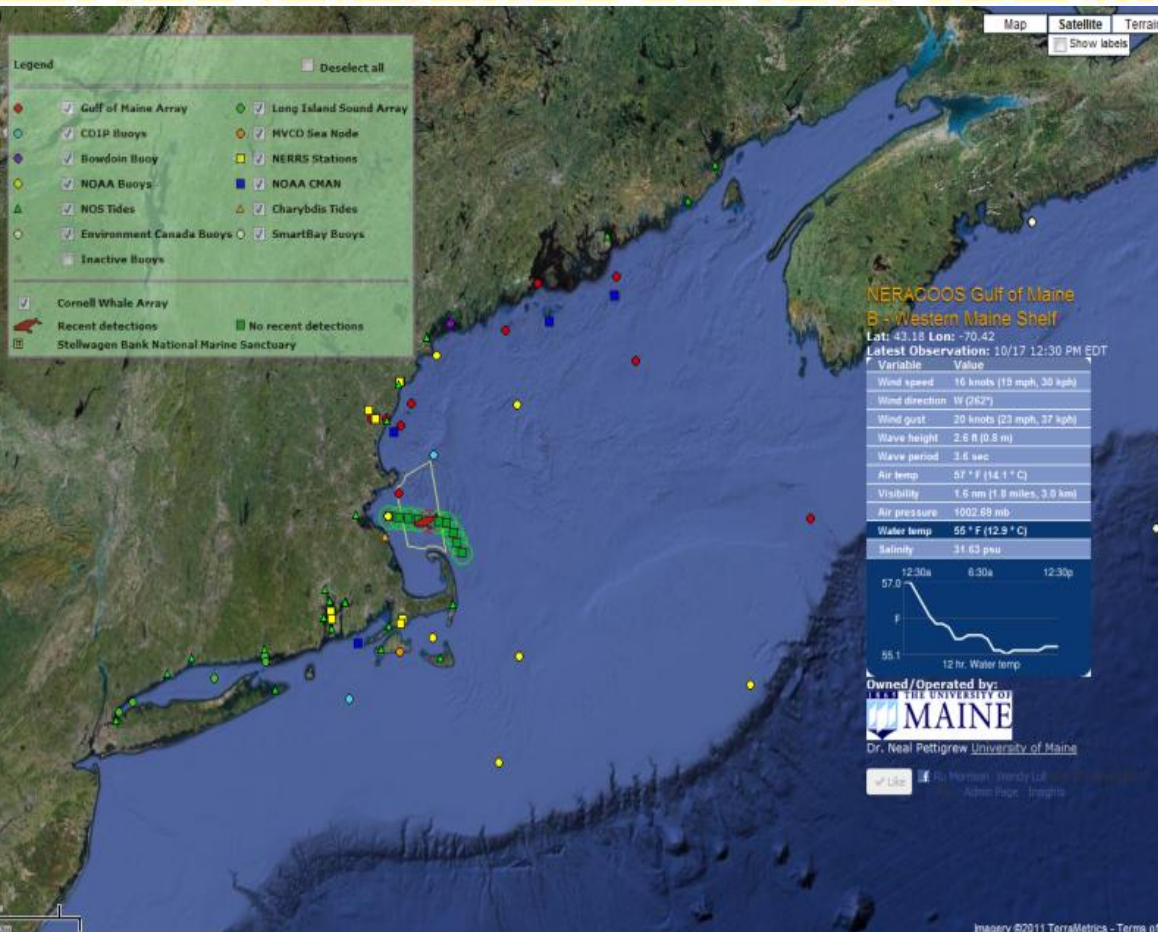


NORTHEASTERN REGIONAL ASSOCIATION
of COASTAL OCEAN OBSERVING SYSTEMS



OCEAN INFORMATION

for PLANNING, SAFETY and STEWARDSHIP



ADDRESSING SOCIETAL PRIORITIES in the NORTHEAST

NERACOOS focuses on priority themes:

- MARITIME OPERATIONS**
Helping to improve efficiency and safety of shipping and other maritime industries, and enhancing search-and-rescue and spill response efforts.
- COASTAL HAZARDS RESILIENCY**
Equipping managers and property owners with forecasts and observations to help save lives and property.
- OCEAN AND COASTAL ECOSYSTEM HEALTH**
Providing critical information for forecasting and management of red tides, beach closures, and water quality.
- OCEAN ENERGY PLANNING AND MANAGEMENT**
Delivering essential data for energy development.
- CLIMATE VARIABILITY**
Detecting and predicting changes in key ocean properties such as sea level and ocean acidity.
- COASTAL AND MARINE SPATIAL PLANNING**
Supplying critical ocean and weather data for more effective coastal and marine spatial planning.
- EDUCATION AND OUTREACH**
Contributing to increased knowledge and understanding of the ocean.

US Integrated Ocean Observing System (IOOS)

- A tool that enables the Nation to track, predict, manage and adapt to changes in our marine environment and delivers critical information to decision makers to...

Improve safety



Enhance our

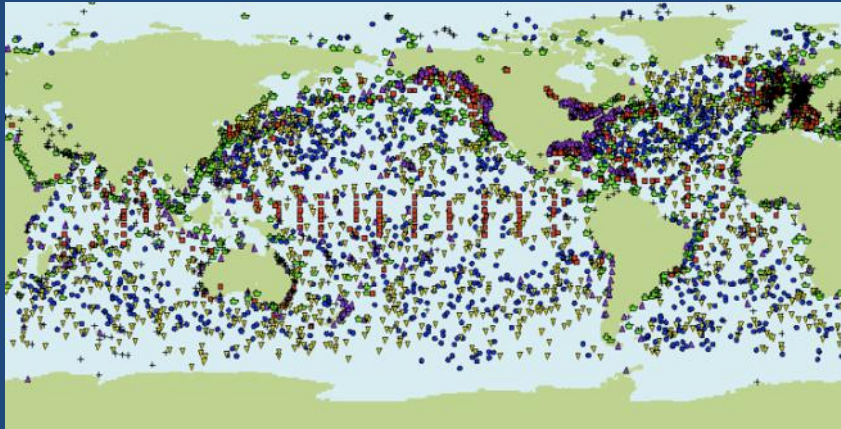


Protect our

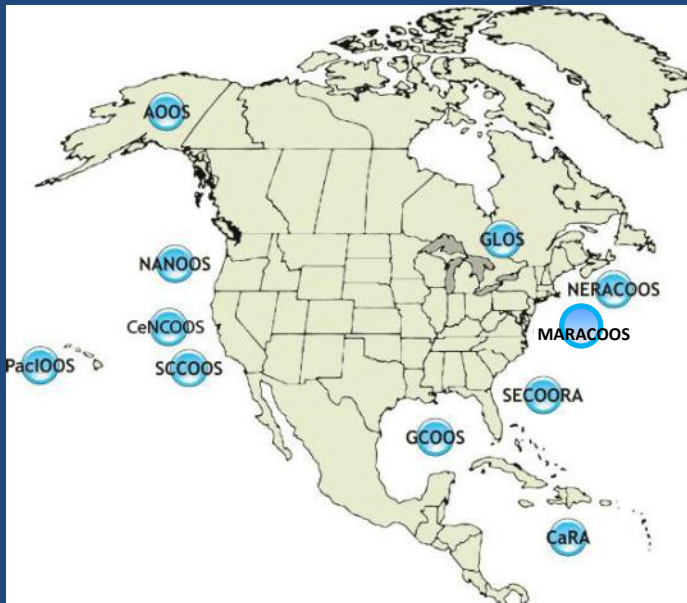


US Integrated Ocean Observing System (IOOS)

Global Component: Global Ocean Observing System



National Component:
Composed of 17 U.S.
Federal Agencies



Regional Component: 11 Regional Associations

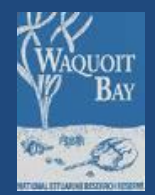
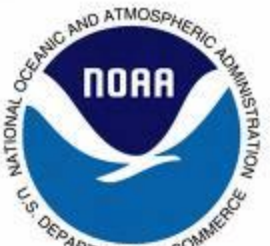
US Integrated Ocean Observing System (IOOS)

The purpose of Regional Associations is to gather “required System observation data, supporting and integrating all aspects of coastal and ocean observing and information programs within a region and that reflects the needs of” stakeholders and users (ICOOS Act, 2009).



Regional Observation Network

A partnership of federal and non-federal organizations, including industry, academia, state, local and tribal governments



NERACOOS Gulf of Maine

Appledore Island CO2

Lat: 43.02 Lon: -70.54

Latest Observation: 12/05 4:50 AM EST

Variable	Value
Wind speed	11 knots (12 mph, 20 kph)
Wind direction	NW (325°)
Wind gust	13 knots (15 mph, 25 kph)
Air temp	52 ° F (11.0 ° C)
Air pressure	NA
Water temp	48 ° F (9.1 ° C)
Salinity	32.78 psu
Dissolved Oxygen	7.15 ml/l
Turbidity	0.299 ntu
Chlorophyll	1.00mg chl/m ³
CO ₂ pressure in air	412.650 μATM
CO ₂ pressure in water	427.130 μATM



Owned/Operated by:

UNIVERSITY
of NEW HAMPSHIRE
Dr. Doug Vandemark COOA



297 people like this. Click here to see what your friends like.



IOOS Northeast – Gloucester Maritime Summit, December 4, 2012



Data returns in excess of 90%

OCEAN INFORMATION

for PLANNING, SAFETY and STEWARDSHIP

The NERACOOS mission is:

- To lead the development, implementation, operation, and evaluation of a sustained, regional coastal ocean observing system for the northeast United States and Canadian Maritime provinces, as part of the United States Integrated Ocean Observing System (IOOS).
- To promote the development, assessment, and dissemination of data and data products that meet the needs of end users.
- To advocate through education and outreach for the regional, national, and global ocean observing system and the application of scientific assessments using environmental data to meet societal needs.

This is NERACOOS

- NERACOOS is the trusted source of regional ocean weather and information from Long Island Sound to the Gulf of Maine.
- We are one of eleven regions, the northeast Integrated Ocean Observing System (IOOS)
- We are a network of observers, modelers, forecasters, data managers, and tool developers.
- With our partners we produce practical solutions to real-world problems.
- These protect and enhance peoples' lives, livelihoods, and quality of life.

MARITIME OPERATIONS

SUPPORTING SAFETY and EFFICIENCY



+



+



Dec 3, 2012 - Dec 3, 2012: ● Visits

Dec 3, 2011 - Dec 3, 2011: ● Visits



"I trust the weather buoys with my life. Thank you." - Maine Fisherman; "Love your service...I believe your service is a lifesaver. Thanks!" -Dave, Pilot; and "I would like you to know that information you are providing us not only aids us in our work, it almost certainly has saved lives." -Roy Atkinson, Fisherman.

4:00 AM

8:00 AM

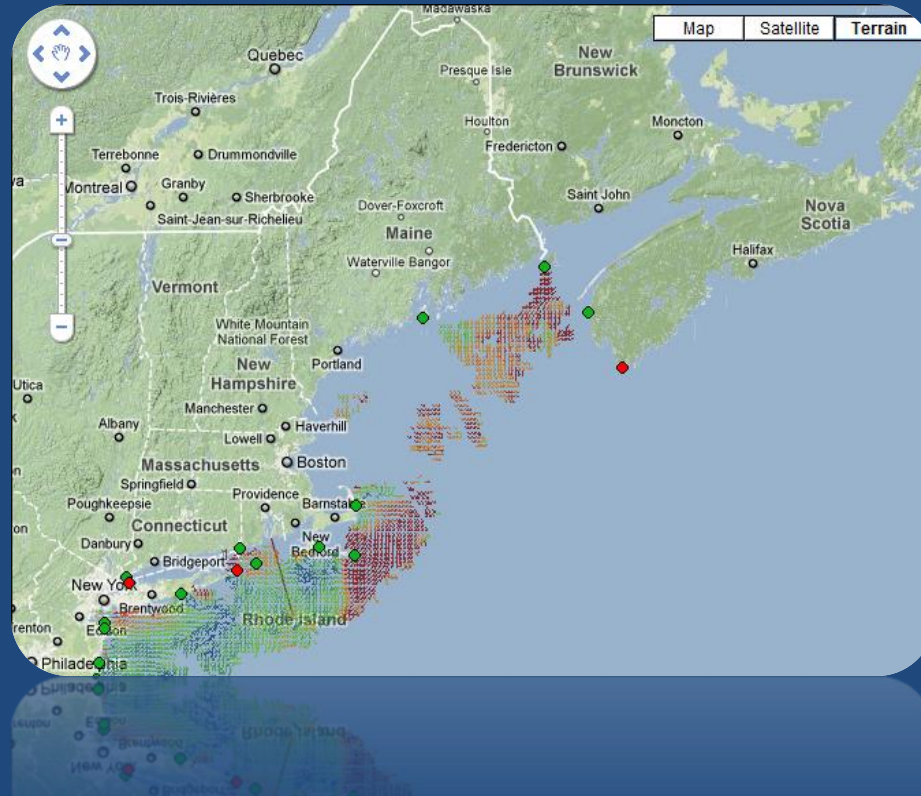
12:00 PM

4:00 PM

8:00 PM

Surface Currents

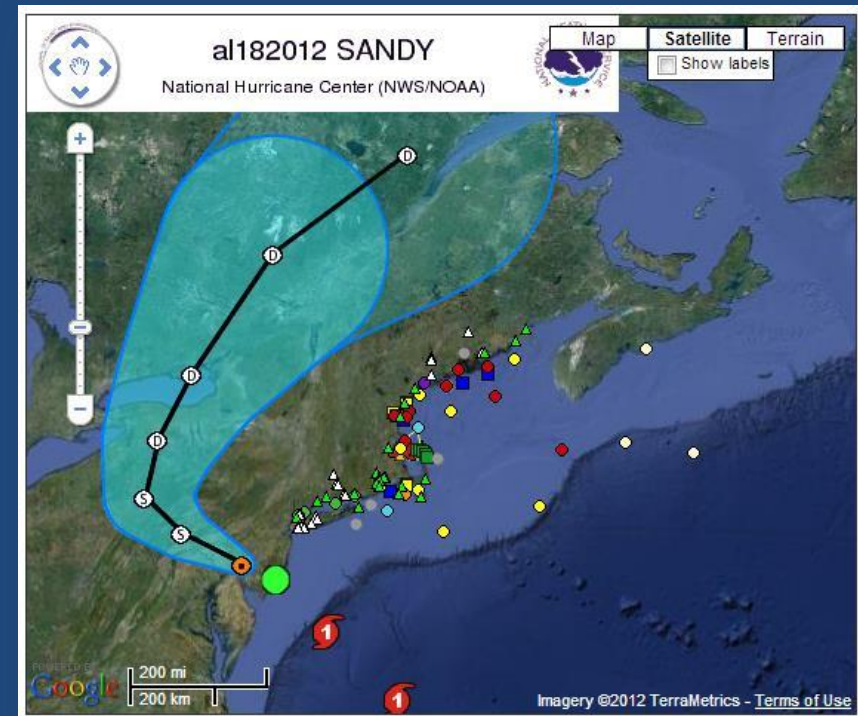
Universities of Maine and Connecticut



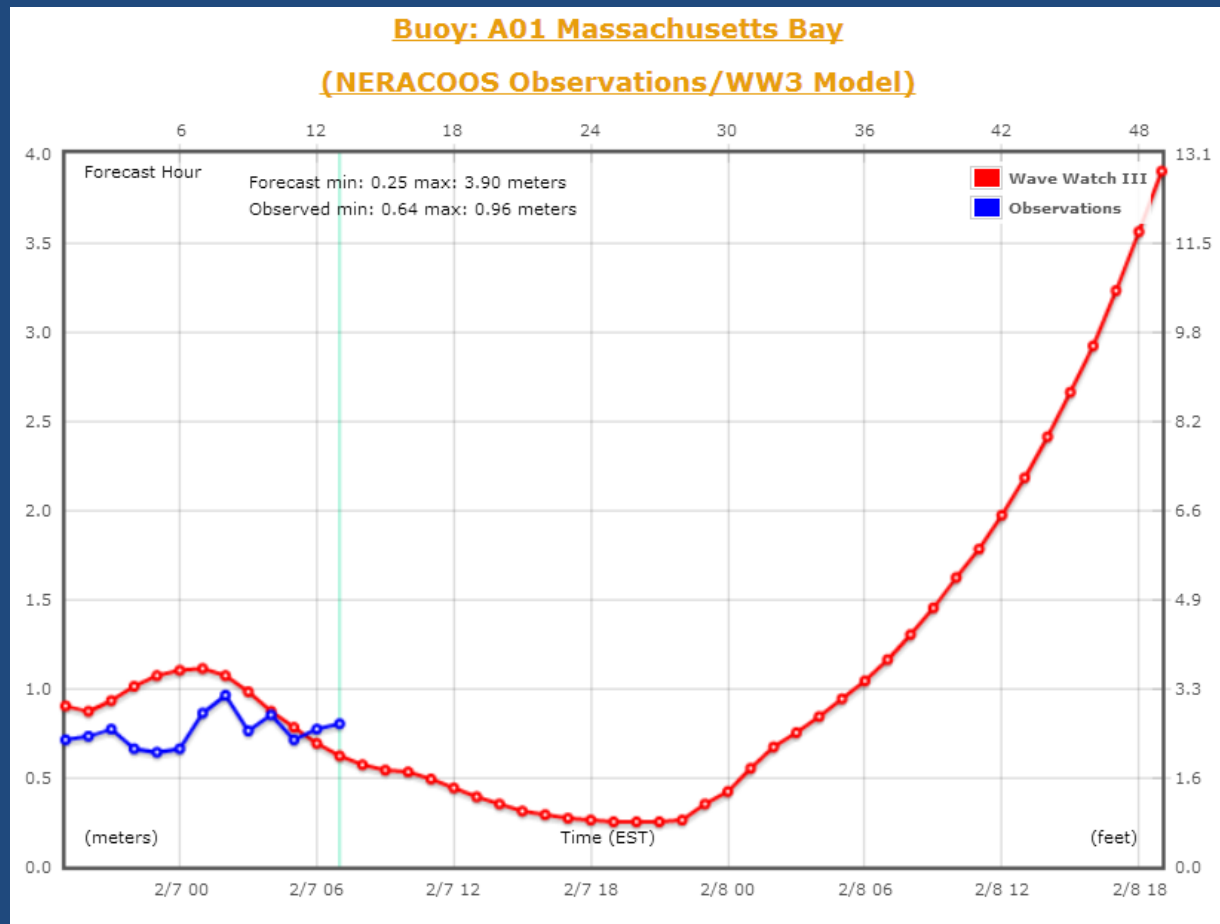
"The forecasts are instrumental in planning both training and routine operations, especially in winter... I cannot imagine operating without this buoy. We check it constantly throughout the day." - USCG

Hurricane Sandy

- Storm surges in LIS and RI were between 8-12 feet
- All buoys survived the storm
- Loss of two surface current radars
- Largest waves ever observed by the Long Island Sound array
- Many buoys reported wave heights around 30 feet.
- Web traffic was up 800% on Monday.



Winter Storm - February 8, 2013



Partnering with the National Weather Service

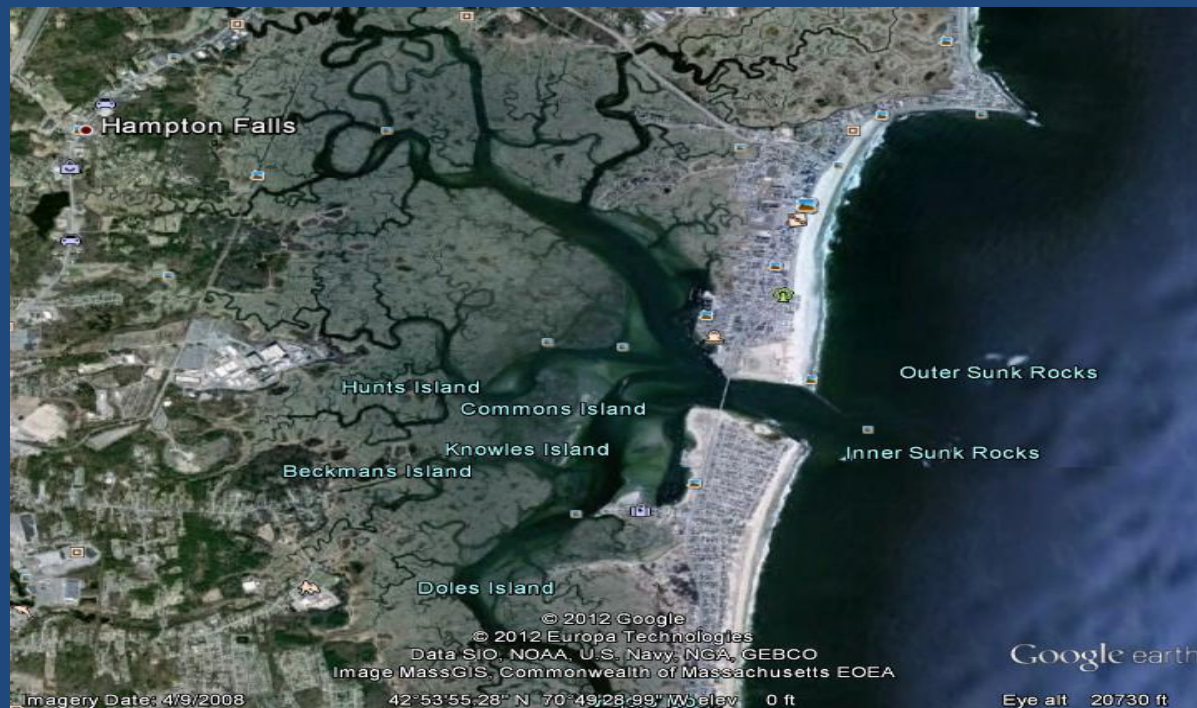


“The close relationship that NERACOOS and a front line office such as NWS GYX has was really important. I received quick responses in real-time for data requests during the storm, making the support from NERACOOS and others terrific!” John Cannon, NWS WFO Gray ME

Bob Thompson from the Taunton, Massachusetts office noted that “the IOOS buoy data were invaluable for Sandy,”

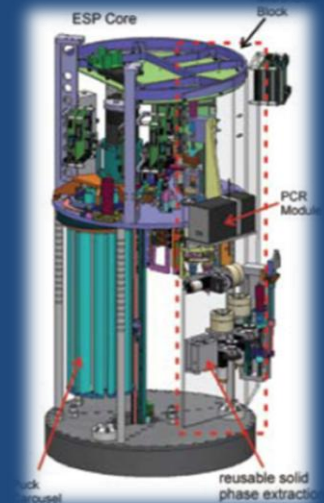
Hampton-Seabrook Coastal Inundation Forecast

The NERACOOS Northeast Coastal Ocean Forecast System (NeCOFS) team is currently working with the NWS, NH DES, and the Town of Hampton, NH, PREP and NextEra Energy to develop a coastal inundation forecast system for the Hamptons area of NH.



Harmful Algal Blooms

- Bedford Institute of Oceanography
 - Monitoring *Alexandrium* in Bay of Fundy
 - Finalizing Satellite Based HAB warning system
- Woods Hole Oceanographic Institution
 - Environmental Sample Processors (ESP)
 - Transitioning forecast system to NOAA



“... having uninterrupted access to these NERACOOS mooring time series is critically important to our Alexandrium forecasts.” - Don Anderson, WHOI.

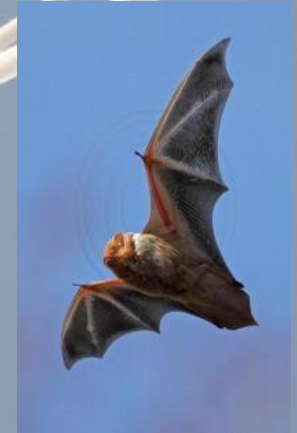
Water Quality

- University of Connecticut
 - Hypoxia monitoring and modeling in Long Island Sound for NY and CT waste load allocations
- University of Rhode Island
 - Testing autonomous sampling technology
 - Incorporating Narragansett Bay Fixed Site Monitoring Network
- Bedford Institute of Oceanography
 - Monitoring nutrients at entrance to Gulf of Maine
- University of New Hampshire
 - Informing NH DES nutrient criteria work



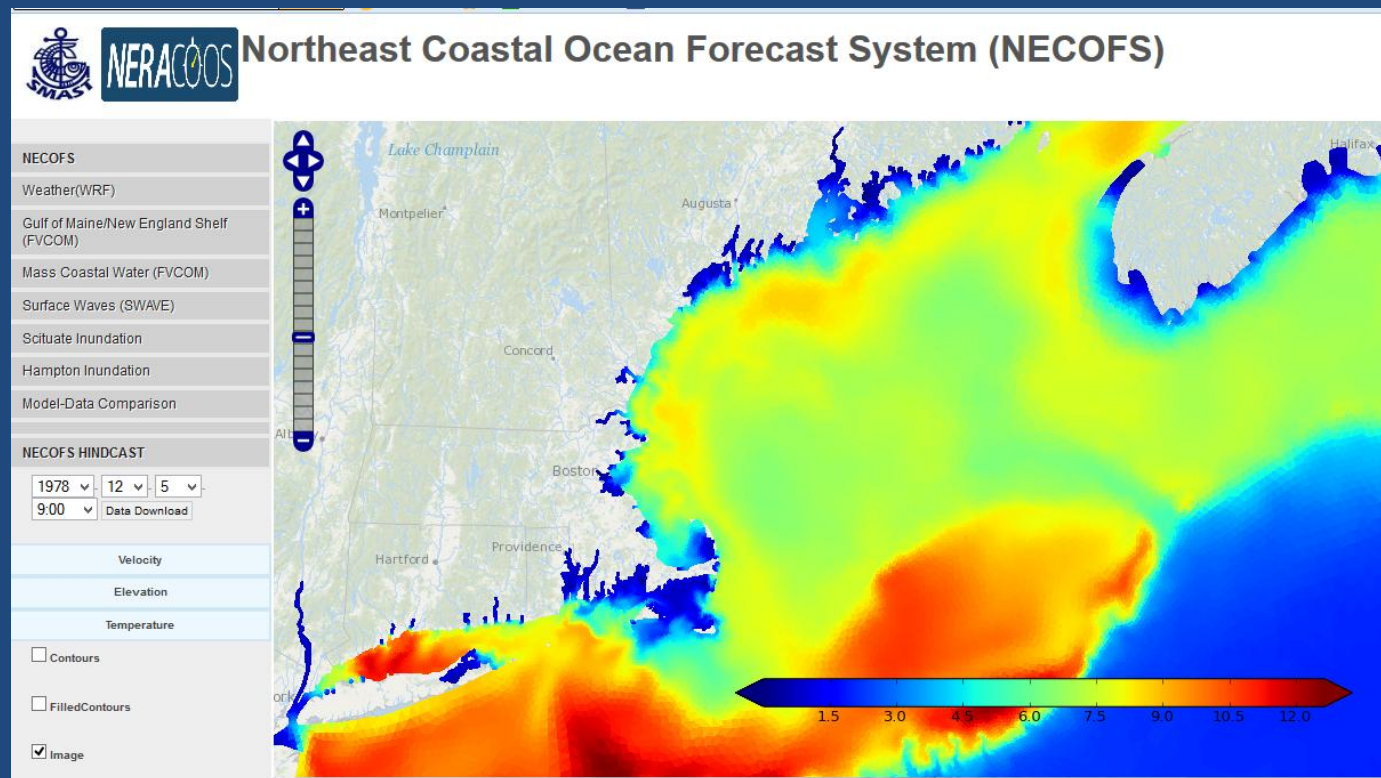
Leveraging Biological Monitoring on Buoys

- University of Maine
 - Fish telemetry since 2005, NMFS
 - Bats since 2011, Stantec

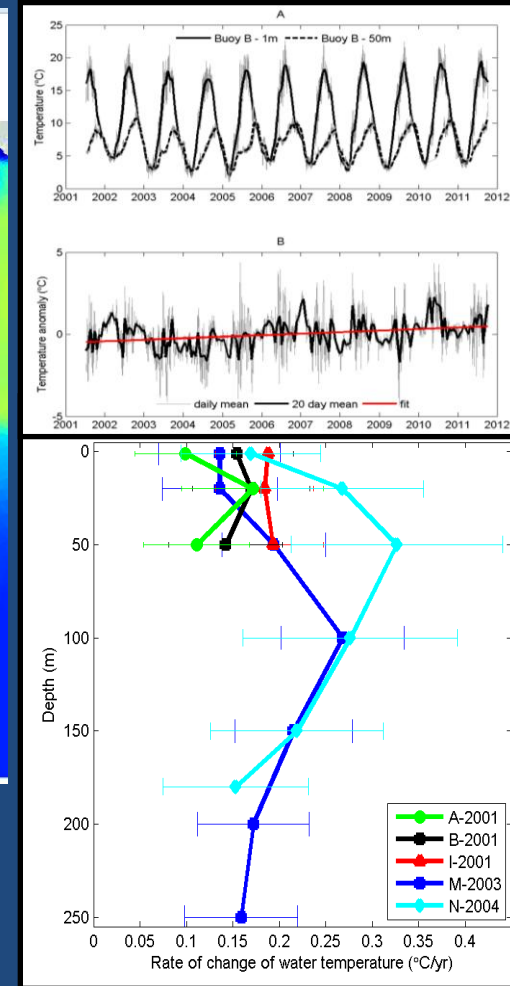


"If the marine environment is not sufficiently characterized, developers will not risk starting offshore wind projects in the Gulf of Maine. These buoys and model information will improve the viability of the Gulf of Maine as a strong candidate for offshore wind farm developments ... We look forward to working with NERACOOS on sharing monitoring information". DeepCwind Consortium

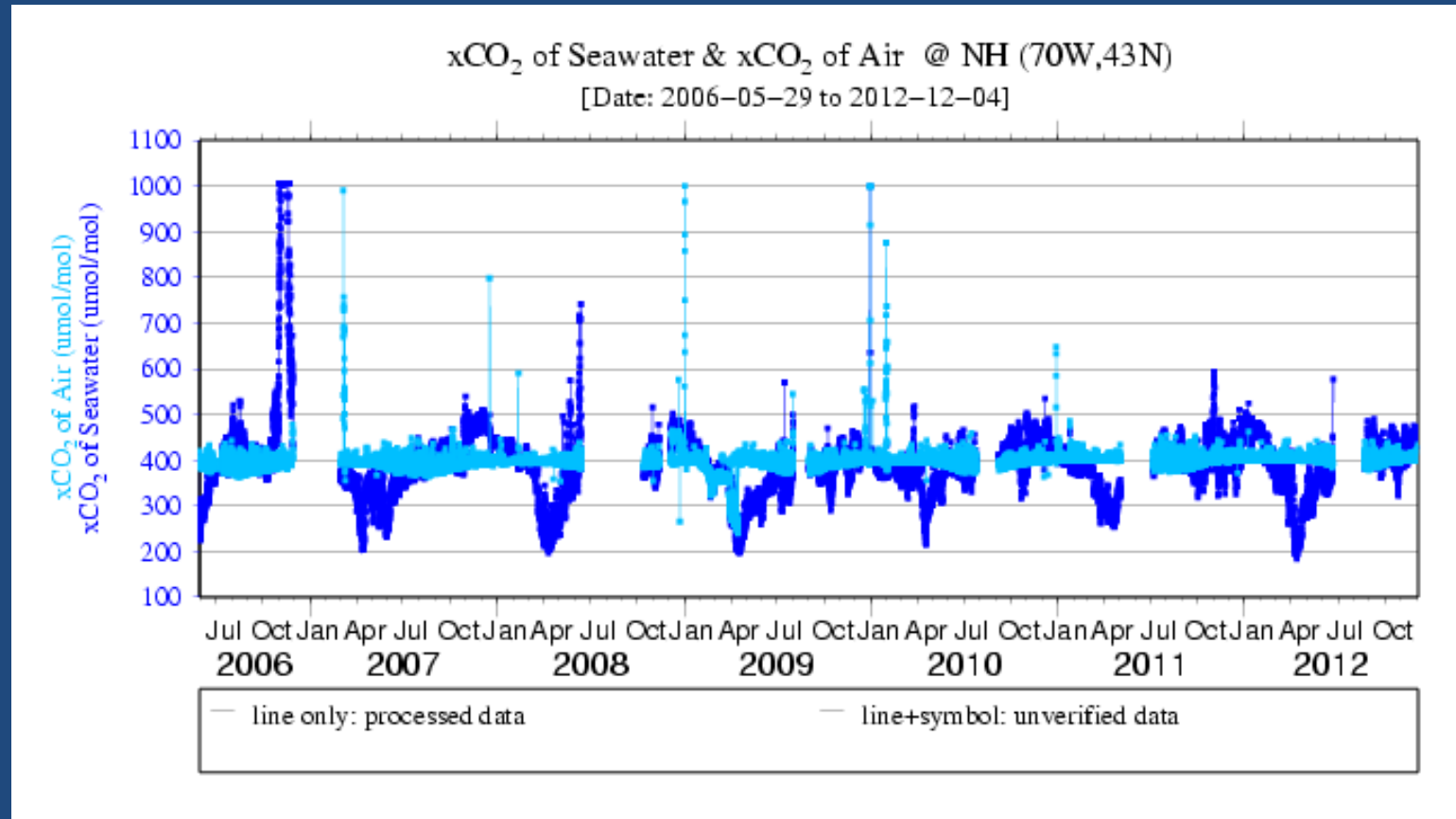
NERACOOS Informing Regional Climate Monitoring



Models and Observations
NERACOOS part of 2012 National
Climate Assessment



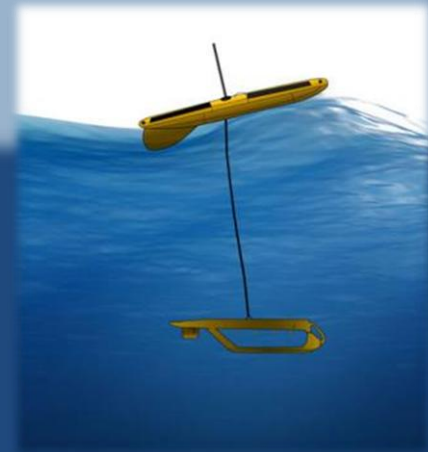
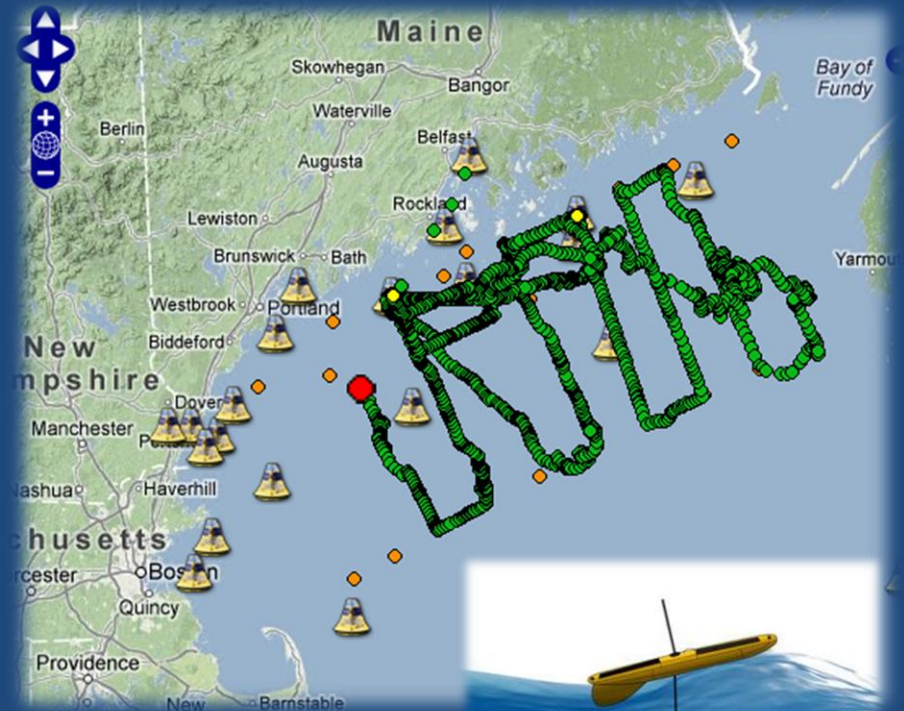
NERACOOS Informing Regional Climate Monitoring: Ocean Acidification



NOAA OCEAN ACIDIFICATION
PROGRAM

Testing new technology

Wave Glider and Fetch Node Mission



Launched on May 3
and recovered July 27



New website and products

The screenshot shows the NERACOOS website interface. At the top is the IOOS logo and the text 'INTEGRATED OCEAN OBSERVING SYSTEM'. Below this is the NERACOOS logo and the full name 'Northeastern Regional Association of Coastal and Ocean Observing Systems'. A navigation bar includes links for Home, About, Data & Tools, Focus Areas, News and Events, Education, Feedback, and GoMOOS. The main content area features a large banner for 'The NEOSEC Ocean Literacy Summit' with the text 'The ocean is largely unexplored' and dates 'November 1-2, 2012'. To the right is a 'Real Time Data Portal' with a 'GO!' button and 'Latest Conditions' for wind, waves, and water level. Below this is a 'NERACOOS Data and Tools' section with links to Wave Forecast, Graphing/Download, Surface Currents, Ocean Forecasts, Model Data Viewer, and Maps for Planning. The 'NERACOOS News' section lists recent updates from October 22, 2012, and July 27, 2012. A 'Partner Highlight' section features the University of Maine Physical Oceanography Group. The footer contains regional and national IOOS affiliations and copyright information.

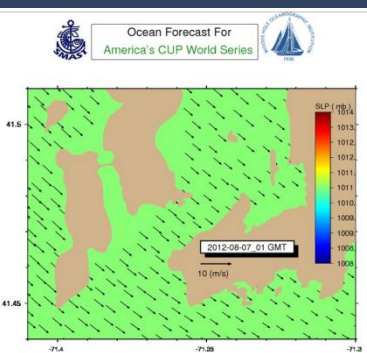
Web stats 2011 vs.
2012

Visits: up **778%**
120,954 vs 13,770

Unique visitors: up **1,260%**
84,823 vs 6,237

Page views: up **178%**
197,641 vs 70,985

New website and products



Additional data from this buoy

■ [All Data From This Station](#)

■ [Compare Stations](#)

■ [12 Hour History](#)

■ [Quick History](#)

■ [Wind and Wave Forecast](#)

■ [Graphing and Download](#)

■ [Station Description](#)

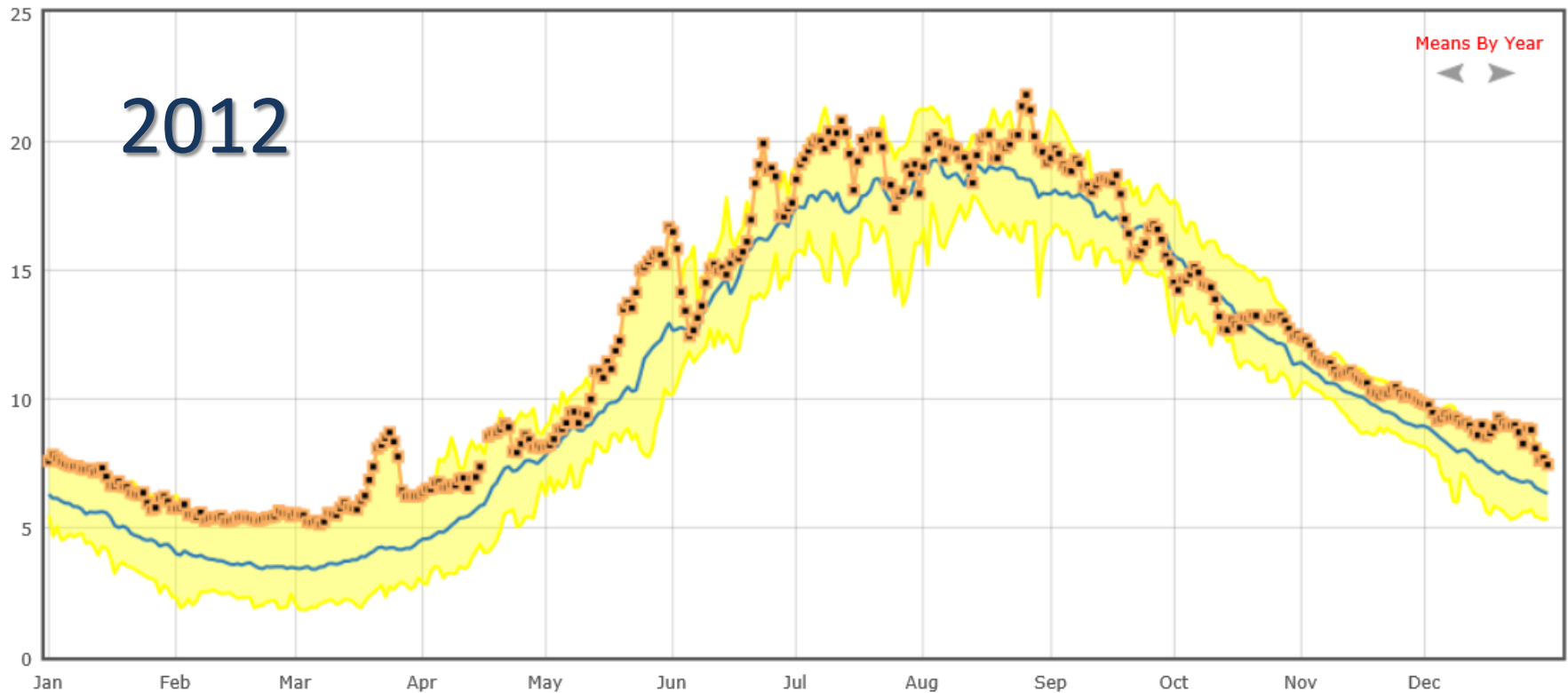
■ [Explanation of Data Types](#)

- GoMOOS.org retired on April 15, 2012
- Integrated GoMOOS products
- Text a buoy/Twitter
- USGS tide gauges online
- RSS feed developed- neracoos.org/RSS
- Drifters online-
neracoos.org/datatools/drifter
- Created Forecast Viewer Tool for participants at the Newport America's Cup June 23-July 1

New website and products - Climatologies

Mean Water Temperature 1 meter depth at A01 for 2001 thru 2013

Daily Means for 2012



2012

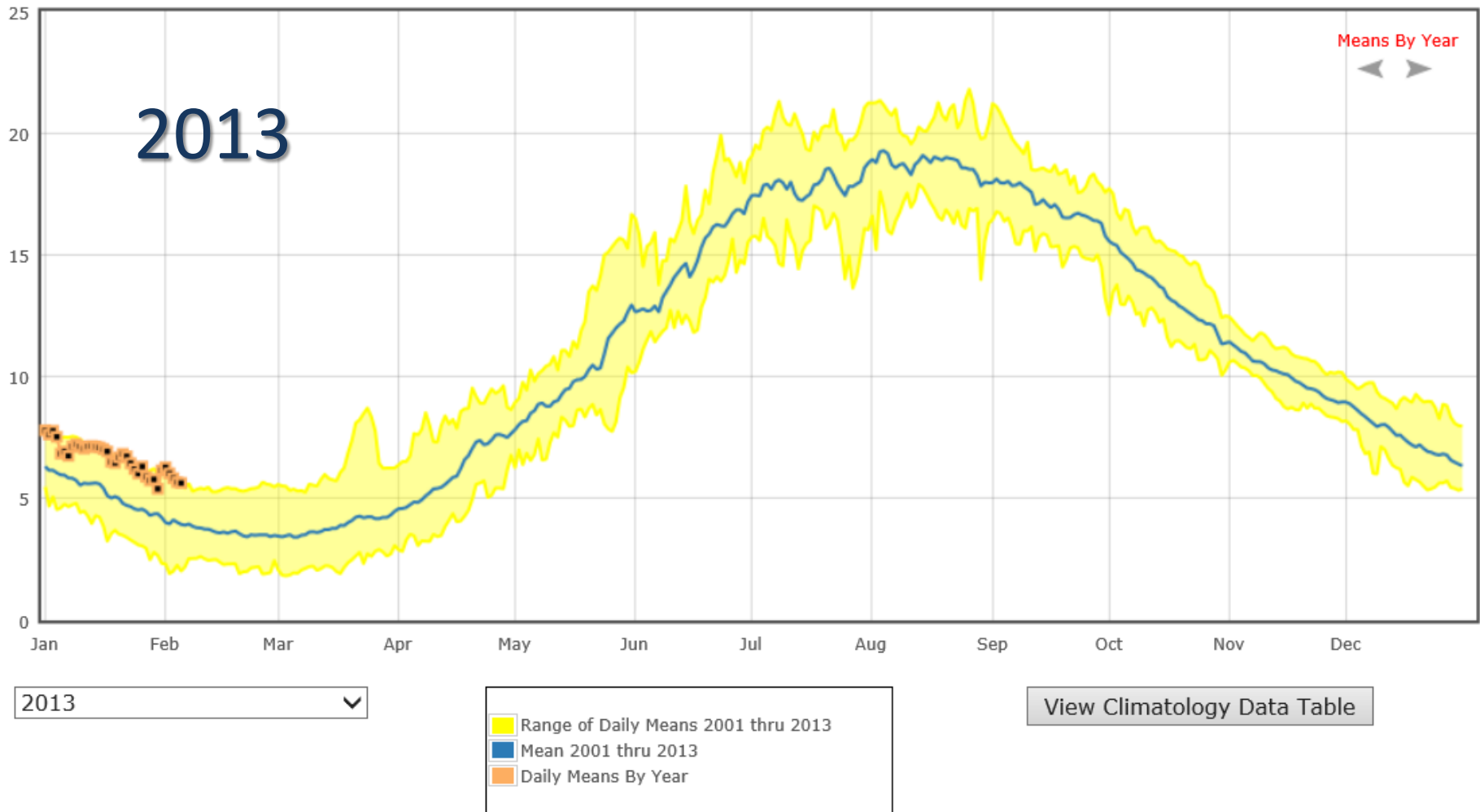
- Range of Daily Means 2001 thru 2013
- Mean 2001 thru 2013
- Daily Means By Year

[View Climatology Data Table](#)

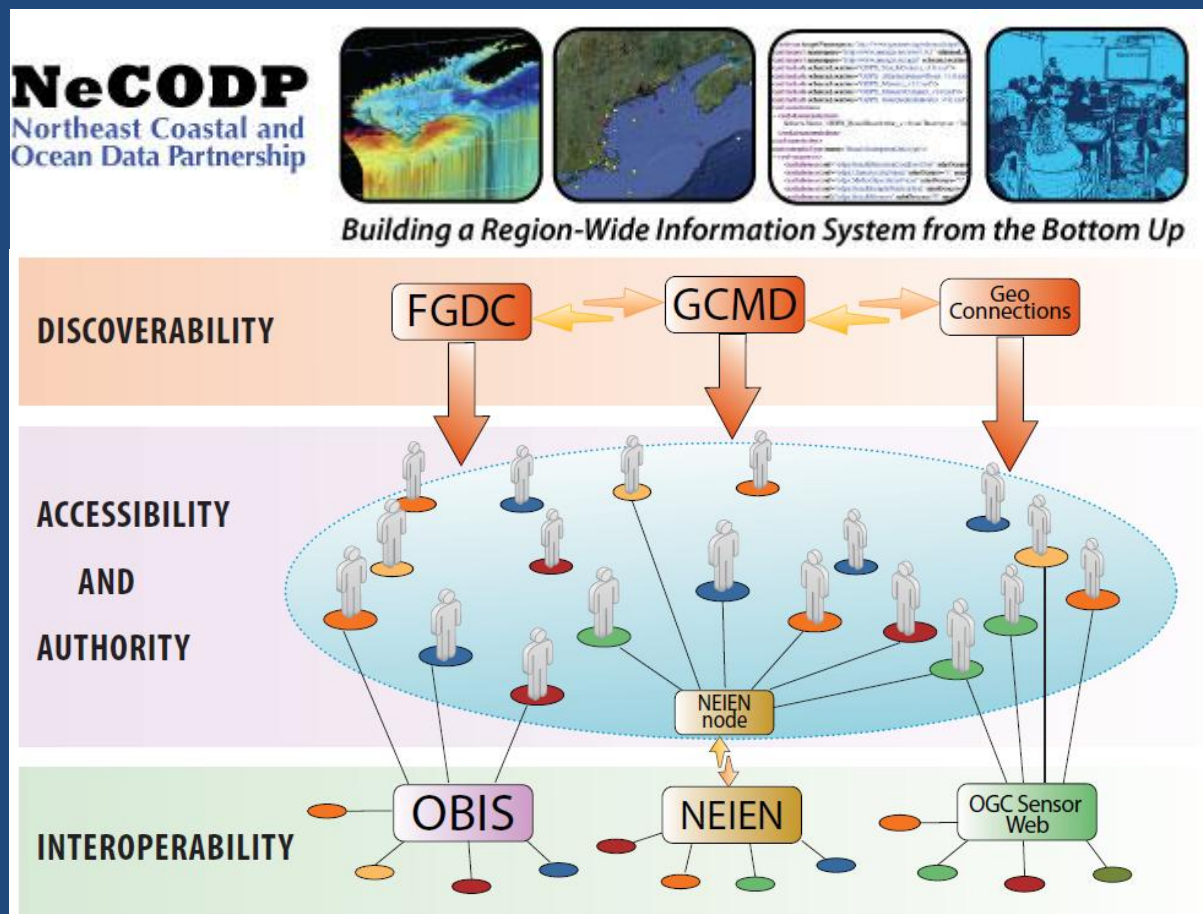
New website and products - Climatologies

Mean Water Temperature 1 meter depth at A01 for 2001 thru 2013

Daily Means for 2013



Data Management



Data for Ocean Planning

NORTHEAST OCEAN DATA

Search this site...



[HOME](#) [MAPS »](#) [DATA VIEWER »](#) [DATA »](#) [ABOUT](#) [CONTACT](#) [NEWS](#)

INTERACTIVE MAPS



AQUACULTURE



ENERGY



**MARINE LIFE:
MAMMALS**

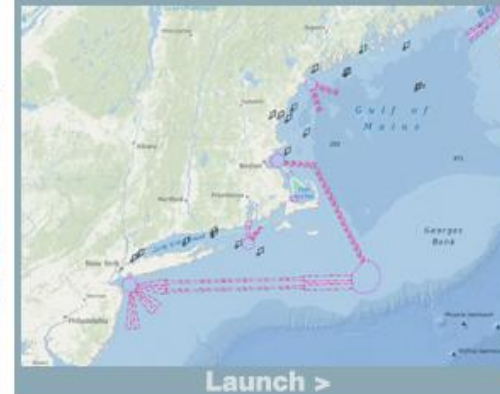


**MARITIME
COMMERCE**

Coming soon: **COMMERCIAL FISHING**
RECREATION
MORE MARINE LIFE: FISH, BIRDS, MAMMALS, TURTLES

The Northeast Ocean Data Working Group is developing an interactive atlas of human and environmental aspects of the ocean in New England. The maps listed above are preliminary components of the atlas. We release new maps on an ongoing basis, and we continually improve and revise the existing maps to present the best available information in a useful format. We are working closely with many public- and private-sector organizations to identify information needs, data sources, and the most effective ways to present information in these maps.

DATA VIEWER



This website is a decision support tool for ocean planning in the northeastern United States, providing resource managers, planners, scientists, and stakeholders with interactive maps, data, tools, and information on human and natural dimensions of the ocean.

NEWS

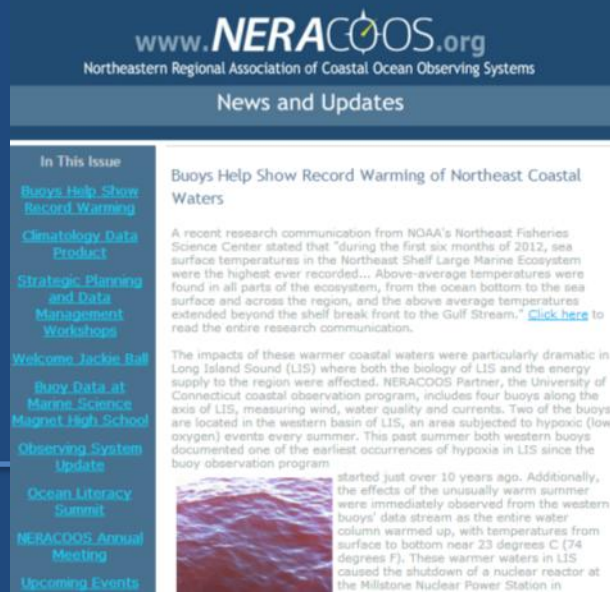
- [Redesign of Northeast Ocean Data website](#)
- [Updates to NE Ocean Data databases](#)
- [Working Waterfront article on NE Ocean Data](#)

DATA

- [Data Download](#)
- [External Data Sources](#)
- [Policies and Standards](#)

NERACOOOS Communication and Outreach Activities

- 89 new likes since 2011
- participation in events
- focus groups
- quarterly newsletters



DATA and RESOURCES for EDUCATORS

NERACOOS
NORTHEASTERN REGIONAL ASSOCIATION OF COASTAL AND OCEAN OBSERVING SYSTEMS

Ocean Literacy

Supporting Education

DATA AND RESOURCES FOR EDUCATORS

NERACOOS delivers real-time ocean and weather information, ocean forecasts and long-term ocean information in the Northeast that support and enhance classroom, community, safety, management, research and education and makes it accessible through www.neracoos.org. Our education approach encompasses the following four components:

1. Regional Collaboration
2. School/Educator Partnership
3. Ocean Observing-Based Programs and Activities
4. Educative Resources and Guidance

REGIONAL COLLABORATION

NERACOOS provides information that helps audiences develop their own understanding of the ocean's influence on weather and climate and the relationship between oceans and business. The "Ocean Literacy" is critical to sustaining our ocean and coastal regions. NERACOOS works closely with NEOSEC, the New England Ocean Science Education Collaborative, to provide Ocean Literacy. The Ocean Literacy Principles provide framework to engage people in education and outreach activities related to ocean observing.

NEOSEC
New England Ocean Sciences Education Collaborative

NEOSEC and NERACOOS work together to partner with local and regional education organizations to bring cutting edge ocean information into programs and displays to educate the next generation of scientists and engineers.

For example, the *Families by the Seaside* project was awarded to NEOSEC and its partners to create meaningful learning experiences for underserved and underserved families of informal science education centers by integrating technology into their programs.

NERACOOS helps to sponsor the **NEOSEC Biennial New England Ocean Literacy Summit**, which provide a unique opportunity for educators, scientists, and decision makers to gather for networking, presentations, and hands-on workshops that highlight education and scientist collaborations.

SCIENTIST-EDUCATOR PARTNERSHIPS

NEOSEC and its members are working to build regional capacity for implementing broader impact activities by ocean scientists, and working with educators to ensure that this content and products of coastal ocean science research effectively reach a broad audience in a timely fashion.

One example of this effort is *Right Whales and Ocean Observing: An Exhibit that Connects People to Research*. Scientists from Stellwagen Bank National Marine Sanctuary (SBNMS) are working with staff from the Seacoast Science Center in Rye, NH and NERACOOS to create an exhibit that highlights Right Whale research in SBNMS. New England's only designated marine sanctuary. It will highlight how the research is done, tools that are used, and how the data is translated into policy and management.

OCEAN OBSERVING-BASED PROGRAMS AND ACTIVITIES

NERACOOS real-time data and ocean forecasts can be used in displays, kiosks and online educational tools. The leaders of the Sea Grant at the Seacoast Science Center in Rye, NH encourage visitors to learn about the upwelling, seasonal migration through the Gulf of Maine and about phytoplankton blooms. A display installed at the Astoria Science Magnet high school in southwestern Connecticut displays data in Long Island Sound directly from the NERACOOS Data.

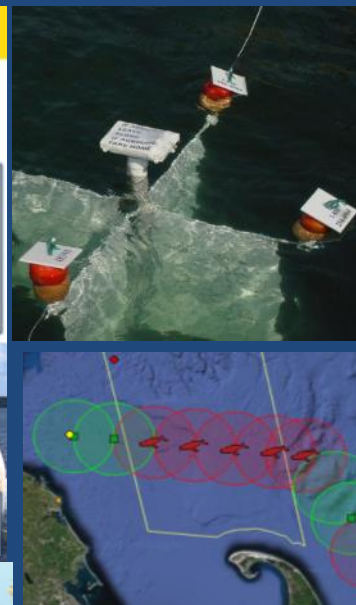
EDUCATION RESOURCES AND GUIDANCE

NERACOOS is a resource for real-time and historical information about the ocean that can be used by educators and students.

- One free interactive map that shows the latest weather and ocean observation including winds, waves, air and water temperature, salinity, night-vision satellite, and more.
- Graphing and Download tool: provides easy access to data on past conditions that can be viewed and analyzed.
- Sea's Buoy and Data's Buoy: tools that allow remote access to the latest weather and ocean observations.
- Wave Height and Direction Forecast: Most popular predicted wave condition across the Gulf of Maine 48 hours in the future.
- Coastal Flooding and Storm Forecast: Decision support tool that forecasts of water level and winds to predict coastal damage.
- Ocean Surface Currents: Most show speed and direction of currents based on satellite altimetry frequency maps.
- Ocean Climatology Forecast: An interactive tool that displays the average ocean and weather conditions from busy locations throughout the northeast.
- Satellite Images for Choptank and Sea Surface Temperatures: A "big picture" view of ocean conditions in the Northeast.

Buoy podcast, Tutorials, Diagrams, Lesson plans, and more NERACOOS resources to access these resources that will help you use NERACOOS and other ocean observing information. A Buoy Observation Activity is coming soon. This activity will allow the users to select and compare data from several buoys over time, in response to a map across the region.

CONTACT NERACOOS
JUDY GOODMAN
JUDY@NERACOOS.ORG
2025-011-7765
1400 Kennebunkway
www.neracoos.org



NEOSEC
New England Ocean Sciences Education Collaborative

New England Ocean Science Education Collaborative

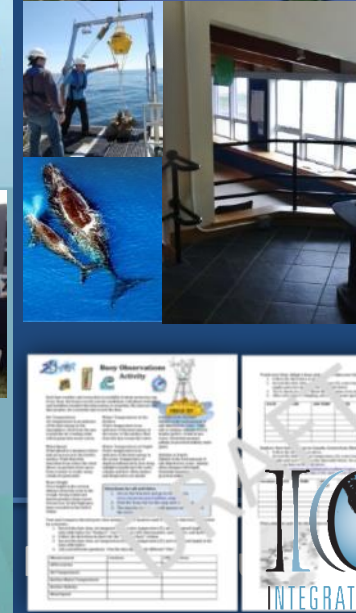
Seacoast Science Center	BOATCAMP	Marine Science Center	New England Aquarium	Mystic Aquarium

Portsmouth Housing Authority	Jump Start Youth Connection	Girl's Inc., Lynn	Chelsea Inter-generational Learning Center	Subase New London Navy Child & Youth Services

"I believe the ocean literacy principles give us a very firm foundation on which to stand." —Dr. Kathryn Sullivan

NEOSEC Ocean Literacy Summit 2012

"a truly useful and energizing event" —attendee



IOOS INTEGRATED OCEAN OBSERVING SYSTEM

NERACOOS
Northeastern Regional Association of Coastal and Ocean Observing Systems

Home About Data & Tools Focus Areas News and Events Education Feedback

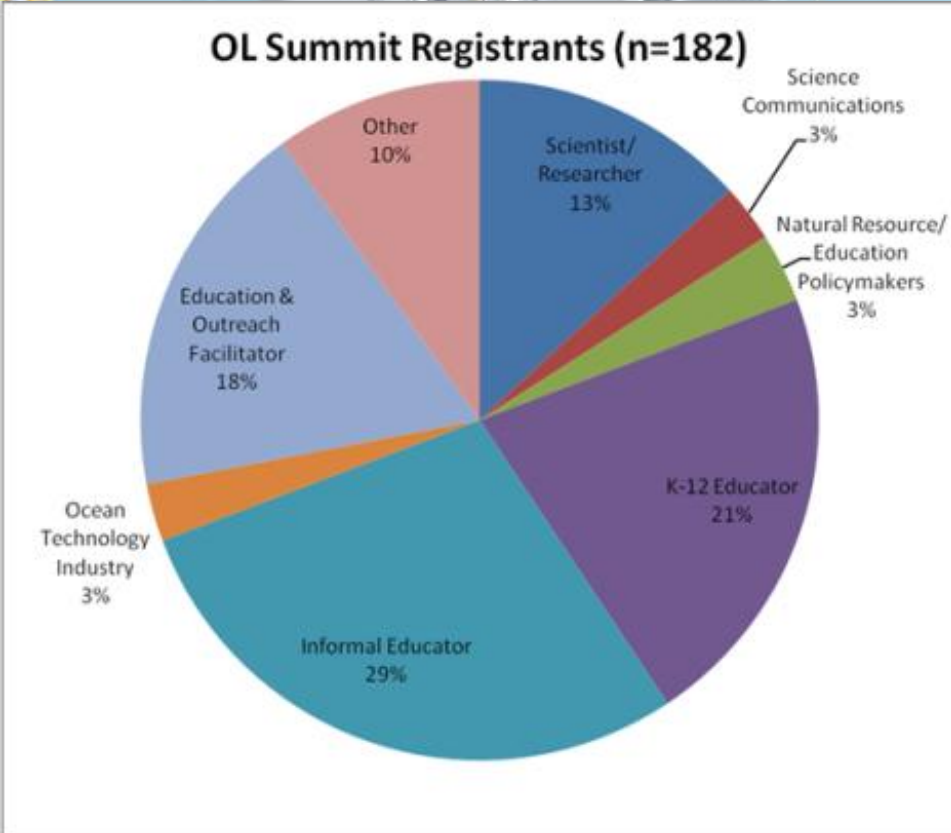
Resources NEOSEC website

NERACOOS
NORTHEASTERN REGIONAL ASSOCIATION OF COASTAL OCEAN OBSERVING SYSTEMS

The New England Ocean Literacy Biennial Summit 2012

The ocean is largely unexplored

- Co-sponsored and Coordinated
- NERACOOS Speakers
- NERACOOS Buoys second most exciting ocean data to use in class after Dr. Ballard's Teacher at Sea program



NEOSEC Ocean Literacy Summit 2012

The ocean is largely unexplored

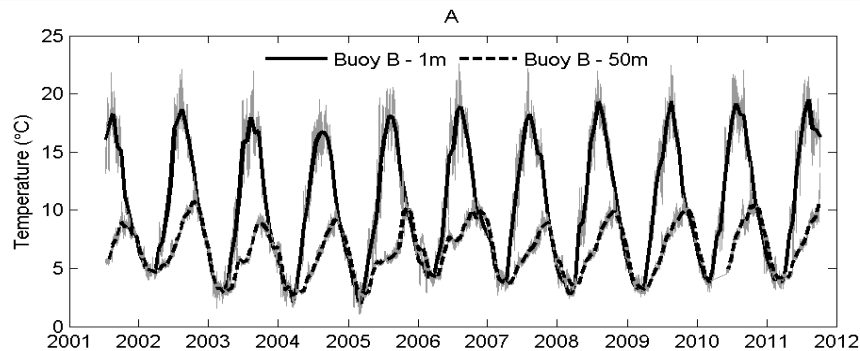
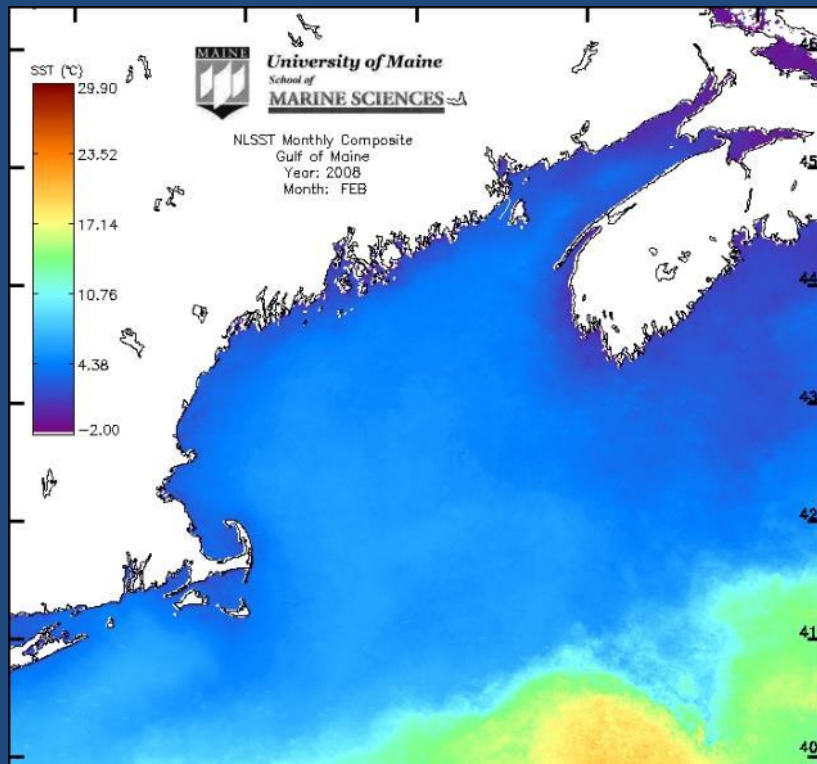
November 1-2, 2012 at the University of Rhode Island

Strategic Planning and Implementation Team

- April 3 and September 25 Meetings
- New Membership
- Operational Efficiencies
- Future Equipment needs
- Alternative Funding Options and Plans
- Merged working groups with NROC



NERACOOS 2013: More information and better access



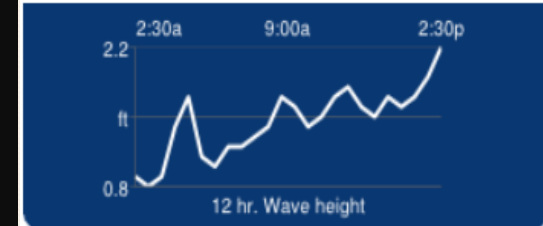
11:43 AM

NERACOOS Gulf of Maine A - Massachusetts Bay

Lat: 42.52 Lon: -70.56

Latest Observation: 02/06 2:30 PM EST

Variable	Value
Wind speed	21 knots (24 mph, 39 kph)
Wind direction	W (275°)
Wind gust	25 knots (29 mph, 47 kph)
Wave height	2.2 ft (0.7 m)
Wave period	3.2 sec
Air temp	37 ° F (2.8 ° C)
Visibility	1.6 nm (1.8 miles, 2.9 km)
Air pressure	1014.45 mb
Water temp	42 ° F (5.8 ° C)
Salinity	33.10 psu
Dissolved Oxygen	6.93 ml/l
Turbidity	0.274 ntu
Chlorophyll	1.22mg chl/m ³



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- These protect and enhance peoples' lives, livelihoods, and quality of life.

KEEP MOVING FORWARD

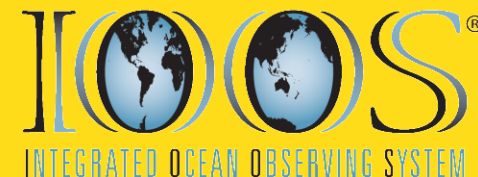
“Around here, however, we don’t look backwards for very long. We keep moving forward, opening new doors and doing new things ... and curiosity keeps leading us down new paths.”

- Walt Disney





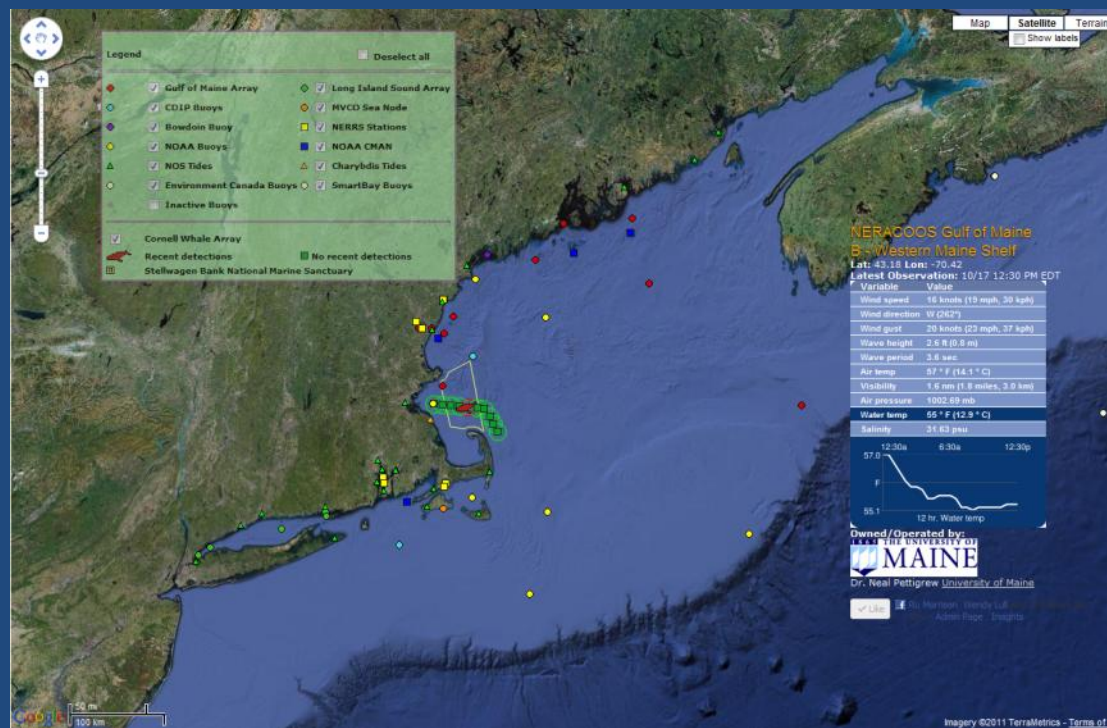
NORTHEASTERN REGIONAL ASSOCIATION
of COASTAL OCEAN OBSERVING SYSTEMS



OCEAN INFORMATION

for PLANNING, SAFETY and STEWARDSHIP

2013: The year ahead

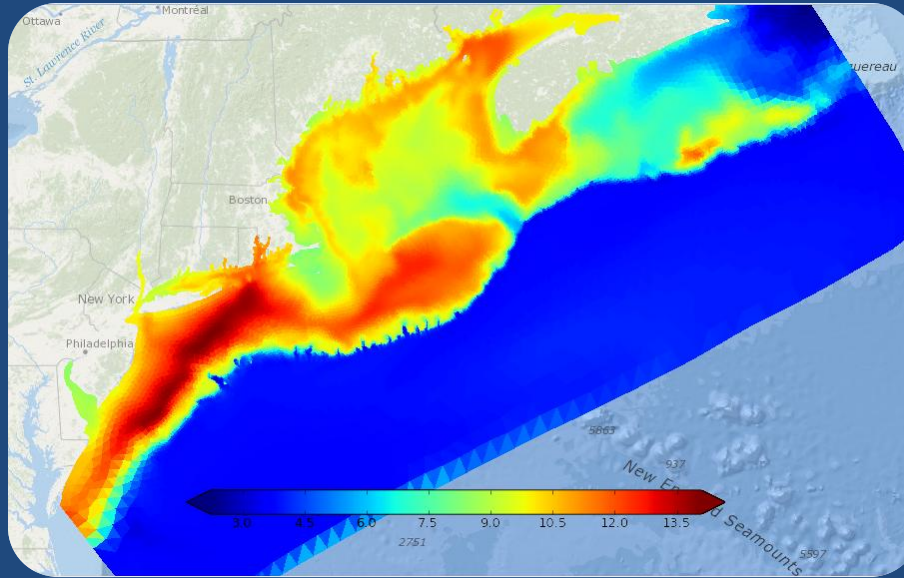
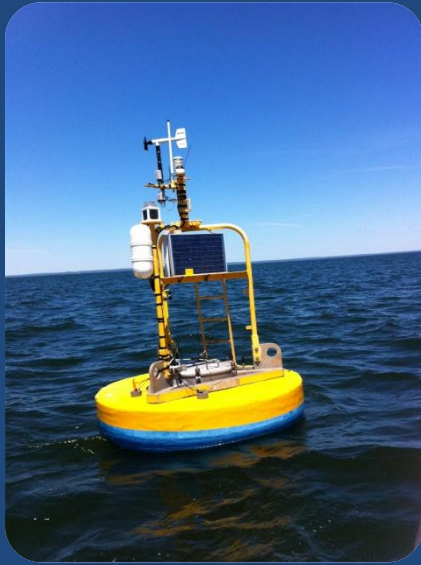


ADDRESSING SOCIETAL PRIORITIES in the NORTHEAST

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Helping to improve efficiency and safety of shipping and other maritime industries, and enhancing search-and-rescue and spill response efforts.
- **COASTAL HAZARDS RESILIENCY**
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- **OCEAN AND COASTAL ECOSYSTEM HEALTH**
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- **OCEAN ENERGY PLANNING AND MANAGEMENT**
Delivering essential data for energy development.
- **CLIMATE VARIABILITY**
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- **COASTAL AND MARINE SPATIAL PLANNING**
Supplying critical ocean and weather data for more effective coastal and marine spatial planning.
- **EDUCATION AND OUTREACH**
Contributing to increased knowledge and understanding of the ocean.

NERACOOS 2013: Sustaining critical infrastructure

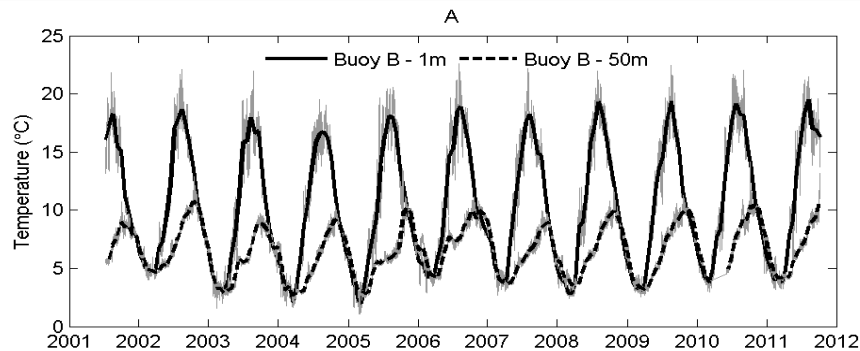
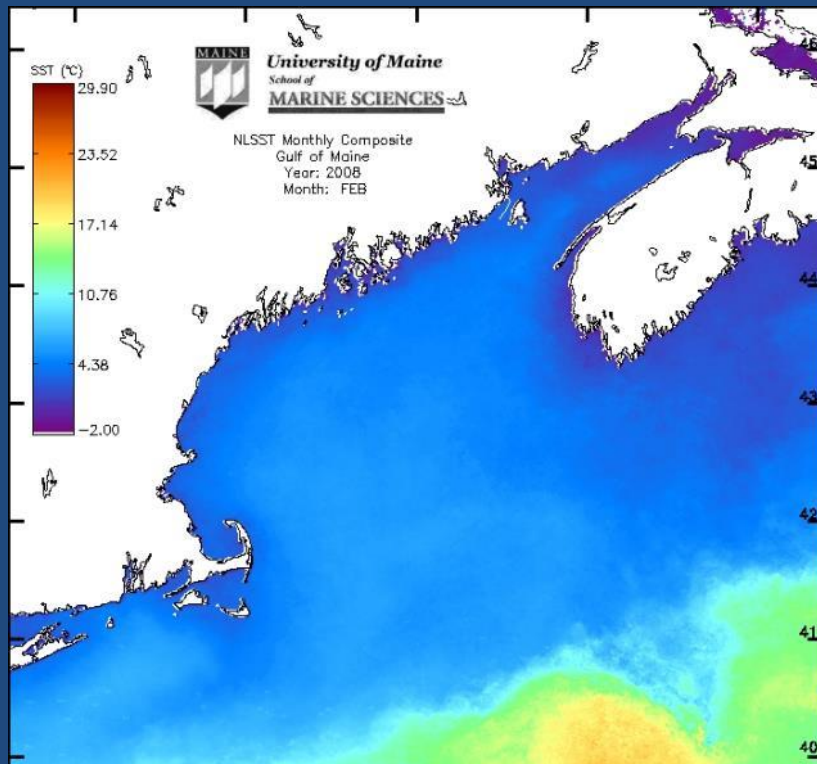


NERACOOS 2013: Stakeholder Engagement



Intra and Inter -Regional Collaboration

NERACOOS 2013: More information and better access



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Wind speed	21 knots (24 mph, 39 kph)
Wind direction	W (275°)
Wind gust	25 knots (29 mph, 47 kph)
Wave height	2.2 ft (0.7 m)
Wave period	3.2 sec
Air temp	37 ° F (2.8 ° C)
Visibility	1.6 nm (1.8 miles, 2.9 km)
Air pressure	1014.45 mb
Water temp	42 ° F (5.8 ° C)
Salinity	33.10 psu
Dissolved Oxygen	6.93 ml/l
Turbidity	0.274 ntu
Chlorophyll	1.22mg chl/m ³



DATA and RESOURCES for EDUCATORS



Business Model

Private – Public
Partnerships

Breaking News: December
4, 2012 Portsmouth NH

*NERACOOS Board
approves development of a
membership structure.
The Benefits are huge!*



This is NERACOOS

- NERACOOS is the trusted source of regional ocean weather and information from Long Island Sound to the Gulf of Maine.
- We are one of eleven regions, the northeast Integrated Ocean Observing System (IOOS)
- We are a network of observers, modelers, forecasters, data managers, and tool developers.
- With our partners we produce practical solutions to real-world problems.
- These protect and enhance peoples' lives, livelihoods, and quality of life.

KEEP MOVING FORWARD

“Around here, however, we don’t look backwards for very long. We keep moving forward, opening new doors and doing new things ... and curiosity keeps leading us down new paths.”

- Walt Disney

